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Socioeconomic context, distance to primary care and detection of hepatitis C: A French population-based study☆

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Abstract

Previous research suggests that hepatitis C detection is lower in rural than in urban areas and depends on geographic accessibility to care. To what extent differences in socioeconomic context could explain these disparities remains unknown. This study assessed the respective influence of the socioeconomic context and of the distance to primary care on the hepatitis C detection rates in a well-defined population of 1,005,817 inhabitants covered by a universal health insurance system in the Côte d'Or and the Doubs areas of France. The 1938 cases of hepatitis C newly diagnosed in the survey area between 1994 and 2001 were included. The patients' 'cantons' of residence were classified into six socioeconomic clusters according to 19 quantitative indicators. Age and sex-standardized hepatitis C detection rate ratios (DRR) for the six clusters were estimated and a multilevel Poisson model investigated whether detection rates varied across clusters after adjusting for distance to the nearest general practitioner. Standardized DRR (95% CI) were higher in both ''lower-income urban'' and ''upper-income urban'' clusters and lower in the following clusters: ''outer suburb'', ''industrial rural'' and economically ''dynamic rural''. Adjusting for distance to general practitioner reduced the rate difference between socioeconomic clusters: for a distance to general practitioner equalling 0 km (practice in the municipality) and compared to the ''upper-income urban'' cluster, only the ''lower-income urban'' cluster had higher DRR. In the six clusters, detection rates decreased as the distance to general practitioner increased (DRR 0.89 95% CI 0.84–0.96 for a 1-km change) but the decrease was more marked in both urban clusters. In this population with good primary care affordability, geographic proximity to general practitioner, rather than socioeconomic context of neighborhood, appeared to be the main factor limiting hepatitis C detection.

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Keywords: Health care access; Socioeconomic context; Multilevel modelling; France; Viral hepatitis C; General practitioner (GP); Urban; Rural

Introduction

Hepatitis C virus (HCV) infection is a worldwide cause of life-threatening liver disease, which poses challenging public health problems both in developed

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and developing countries (Perz & Alter, 2006). In most infected people, the infection becomes chronic and remains asymptomatic for many years, even though liver damage worsens. Identifying infected persons and offering medical evaluation and treatment is one of the main objectives of health programs that have been implemented in several countries to tackle the expected hepatitis C-related health burden (CDC, 1998; Department of Health, 2004; Viral Hepatitis Prevention Board, 2005). These programs plan to promote HCV infection screening for persons at high risk in primary care settings. Indeed, general practitioners are in a good position to identify asymptomatic people belonging to high risk groups. Collecting data on cases of HCV infection newly detected in a well-defined area enables program stakeholders to monitor the screening activity and its possible temporal and spatial variations.

Since 1994, such a reporting system has been implemented in two French 'départements', made up of 74 'cantons' (administrative territorial divisions) and totalling 1,005,817 inhabitants. This database enables us to estimate population-based detection rates of hepatitis C and to search for rate variation within the 'départements', according to the place of residence, its environmental and social context and the availability of health care facilities. Indeed, within several countries, health care utilization depends on both individual and contextual characteristics and, in particular, varies between urban and rural areas (Arcury et al., 2005; Casey, Call, & Klingner, 2001; Chaix, Merlo, & Chauvin, 2005a; Chaix, Veugelers, Boëlle, & Chauvin, 2005b; Coughlin, Thompson, Hall, Logan, & Uhler, 2002). In the United States, several studies revealed that people living in rural areas were less likely than urban residents to utilize regular check-up, cancer screening and other recommended preventive services (Arcury et al., 2005; Casey et al., 2001; Coughlin et al., 2002).

As stated by Penchansky and Thomas (1981), access to health services is a general concept which summarizes five specific dimensions describing the ''fit'' between the patient and the health care system: availability, accessibility, accommodation, affordability and acceptability. In the literature, the first two dimensions are often considered simultaneously as both contribute to ''spatial accessibility'', which can be measured in particular by distance to health care provider (Gugliardo, 2004; Ricketts, Savitz, Gesler, & Osborne, 1994). Since the mid-1990s, ensuring the availability of hepatitis C screening services that offer comprehensive care for infected persons has been a priority of French health authorities (Viral Hepatitis Prevention Board, 2005). Regional networks have been created, made up of general practitioners in charge of screening and of specialists who prescribe antiviral treatments. However, spatial accessibility deserves special attention in the French health system, since large geographic variations in physician-to-population ratios exist in France, resulting in a shortage of primary health care providers and specialists in rural areas (Lucas Gabrielli & Tonnellier, 2001). By contrast, the lack of affordability may not be considered as a notable barrier to being screened for HCV infection by a general practitioner, since in 1998 the French National Health Insurance System covered 99.8% of the population, providing good ability to pay for primary care (Bocognano et al., 1999).

In previous work, we found that detection rates of hepatitis C were lower in rural than in urban areas and decreased as the distance to primary care increased, the urban–rural difference becoming insignificant after adjusting for distance to primary care provider (Monnet et al., 2006). Considering the strong effect of distance to general practitioner on detection rates and the low plausibility that it could influence the prevalence of the disease, the results of this first study raised the important issue of possible inequalities in access to HCV screening related to the place of residence.

However, the role of the difference of socioeconomic and cultural context in the urban–rural detection gap needed to be evaluated. Following the numerous studies showing that the context of neighbourhood strongly influenced health outcomes (Pickett & Pearl, 2001), several recent works have shown that contextual characteristics could also modify health care access (Chaix et al., 2005a; Litaker, Koroukian, & Love, 2005). Indeed, the socioeconomic and cultural levels of the context may particularly affect the last dimension of access pointed out by Penchansky and Thomas (1981), acceptability, inasmuch as these factors could influence beliefs and expectations in the population about the need and relevance of hepatitis C screening. Recent research conducted in France on representative national samples has shown that health care utilization not only depended on individual characteristics but also on the socioeconomic context of the area of residence as well as on its supply of physicians (Chaix et al., 2005a; Chaix et al., 2005b). In fact, important contrasts exist between urban and rural areas, concerning health care resources, socioeconomic and cultural factors, as well as differences in premature and avoidable mortality (Trugeon, Fontaine, & Lémery, 2006). Therefore, this study examined (1) whether or not hepatitis C detection rates also varied according to the socioeconomic context of the area of residence and (2) if the decrease in hepatitis C detection

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